

Date: May 9, 2023

TO: NM Geospatial Advisory Committee

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RE: Artificial Intelligence (AI) on “Radar Screen”

I am grateful for the opportunity to share “radar screen” issues from my research perspective. Yes, I am still a member of the New Mexico Professional Surveyors (NMPS) but Barry Phillips is more intimately involved than I with NMPS and he does an excellent job of representing NMPS.

Very briefly, my career has been in surveying and engineering. I retired from teaching in the Geomatics Program at NMSU in 2010. Geometry was my favorite topic in HS and is currently manifest in my continuing interest in working with 3-D digital spatial data. To that end, I advocate the forward-looking concept of a “3-D model for 3-D data.” Additional information is posted at:

<http://www.globalcogo.com> and <http://www.tru3d.xyz>.

The “crush” of technological advances associated with the digital revolution continues unabated. The most recent is AI as brought to everyone’s attention by ChatGPT, Bing, and Bard.

https://www.youtube.com/watch?v=svl_GIBRkSA&ab_channel=CNET

I am not an expert on AI and have little to offer in using AI other than several observations:

1. I believe that AI, in addition to obvious dangers, offers enormous expansion of human capability. Geospatial data users will (and already do) see AI embedded into autonomous driver vehicles.
2. Although the applications and technology for using digital spatial data are “exploding,” the underlying geometry of 3-D spatial data does not change. But the ways those data are created, stored, manipulated, analyzed, and used are undergoing rapid change.
3. Digital twins and high-definition maps are relatively new terms being used to describe how AI implements spatial data applications. That is well and good because the 3-D global spatial data model (GSDM) encompasses those concepts and provides a rigorous geospatial foundation for use of AI.

But here is the challenge. . .traditional spatial data applications rely heavily on separate horizontal and vertical datums. Currently, the National Geodetic Survey (NGS) is committed to continued use of separate datums with modernization of the National Spatial Reference System (NSRS). A high-level review will certainly document compelling reasons for continued use of pseudo 3-D. Arguments for transitioning to true 3-D may ultimately be even more compelling. Plans for a transition must be developed carefully.

From my perspective, spatial data users stand to enjoy enormous benefits if two things happen.

1. An overall authoritative body (See “NIST” proposal in www.tru3d.xyz) needs to moderate a discussion of use and policies of true 3-D versus pseudo 3-D. It seems that various parties are currently reluctant to discuss “the elephant in the room” – see <http://www.globalcogo.com/sages2022.pdf>.
2. Modernization of the NSRS will provide a single 3-D datum for spatial data users. (Exceptions for military and other rare case users will need to be accommodated.)